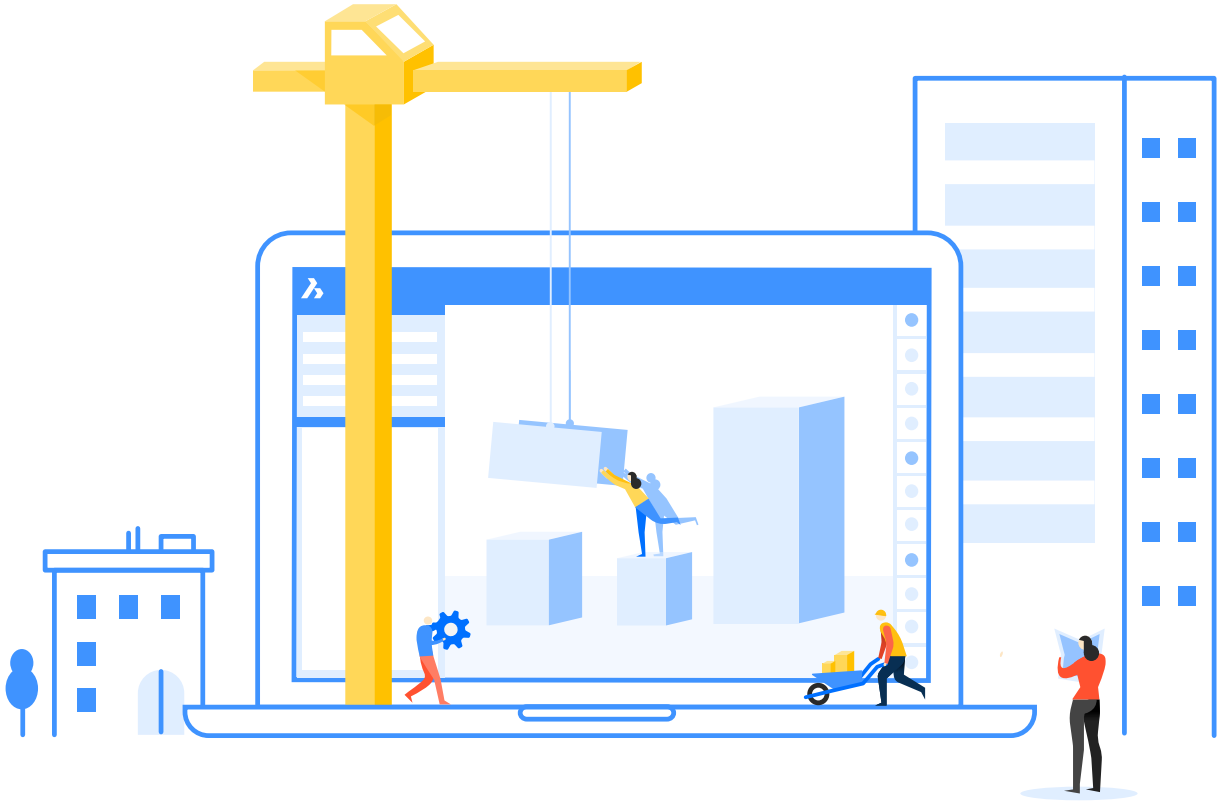


The Value Proposition

BricsCAD BIM

BricsCAD®

Table of contents

01 - BricsCAD BIM: Lifting Design Creativity in DWG

02 - Designing your (virtual) building with BIM

03 - Five key differences in a 3D BIM workflow

- a. Automated management of project documentation
- b. Design capture via 3D massing & study models
- c. Smooth movement from concept to detailed design
- d. Automated updates of construction drawings
- e. Minimized potential for human error

04 - BricsCAD's Powerful 3D BIM Workflow

05 - Start with real conceptual design freedom

06 - Transition smoothly to detailed design

07 - Creating your design documentation

08 - We invite you to try BricsCAD BIM

01

BricsCAD BIM: Lifting Design Creativity in DWG

The business case for making the move to Building Information Modeling continues to grow. The potential for a better end-to-end design workflow is driven by the concept of a BIM as a *'single source of truth'* in building design. Principals love the marketing power of BIM, citing the strong competitive advantage they get from it. This is especially true when firms solicit business from new clients.

Business Value of BIM 2017
These benefits are outlined in the *"Business Value of BIM 2017"* report from McGraw-Hill. They report that building owners also see the long-term value of BIM - especially around reduced documentation errors and less rework. Better document coordination with reduced potential for design errors can lead to savings of money and time in all phases of a building's lifecycle.

But we'll make a safe bet that your firm has not yet made a full transition to BIM. That's OK – **4 out of 5 companies have not**. There are hundreds of reasons to not adopt BIM – both business and technical. You can probably recite quite a few of these reasons without our help.
We'd like to make a proposal to you, and we've created this document to support it. Bricsys declares: *don't fight the BIM wave - transition to riding it*. You can dive into a flexible transition workflow that supports the way you work. We suggest that you can move your firm from a 2D CAD-based design workflow to BIM in a timely, cost-effective way. You will continue to use tools that you already know, and leverage a streamlined workflow that doesn't require an advanced engineering degree to understand.

But first, let's look at the underlying concepts behind Building Information Modeling.

Better document coordination with reduced potential for design errors can lead to savings of money and time in all phases of a building's lifecycle.

02

Designing your (virtual) building with BIM

A key part of the BIM value proposition is reducing the cost of drawing sheet sets while improving their accuracy.

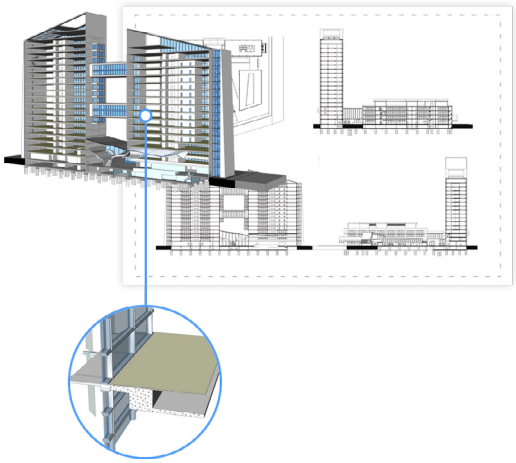
A BIM is a virtual, digital representation of your building
As you make your design choices and add information to a BIM, it becomes a progressively richer source of design data. A BIM represents the concept of a single source of truth about the project.

You may have heard that there's a lot of up-front work in creating a BIM, and that work adds time and effort to a project. Yes, it's true that a BIM workflow is different from a 2D drafting-centric workflow. But the effort that you put into creating a BIM dramatically reduces the downstream potential for errors, and expensive change orders.

Even though 2D drawings are, in the foreseeable future, the ultimate output of any building design project, creating them sheet-by-sheet in 2D CAD is an error-prone and archaic workflow. Managing hundreds of drawing sheets manually is a frustrating and time-consuming process. Managing and maintaining the dependencies between these drawings as the design evolves is even more daunting.

In a BIM workflow, the Building Information Model itself is the generator of the drawing sheets that make up your project's construction documentation. The value of this 3D to 2D workflow cannot be overstated. Every stage of the design process is fully integrated in a proper BIM workflow – from schematic design to construction documentation, through building lifecycle management.

This level of drawing automation and synchronization can be exceptionally liberating.



03

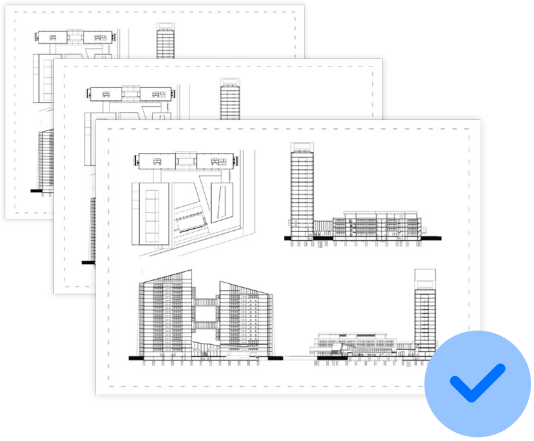
Five key differences in a 3D BIM workflow

Next, let's roll up our virtual sleeves and talk about the benefits of a standard 3D BIM workflow versus 2D drafting-centric methods. We'll compare both workflows at the functional level, in terms of the phases and the deliverables.

a. Automated management of project documentation

In a 2D drafting workflow, the output drawings are independent DWG files, with many dependent external reference files (XREFs). These files are typically organized into sheet sets and managed file-by-file. As changes are made to the design, documentation updates are managed manually. Ensuring the integrity of each view of every drawing in a sheet set becomes a complex process with high potential for error.

In a 3D BIM workflow, the building model and its associated metadata are stored in a database. This database is managed automatically, as are the sheet sets that make up the final drawing deliverables. Changes to the 3D BIM model trigger updates to all generated drawing views, automatically. The changed drawing views are flagged for detailed review, helping to ensure sheet set accuracy and integrity.



In the industry-leading BIM product, Autodesk® Revit, the entire BIM database is held within a single (often enormous) file. BricsCAD's 3D BIM workflow uses DWGs and XREFs in a unique, managed approach that allows easy multi-user access to a BIM.

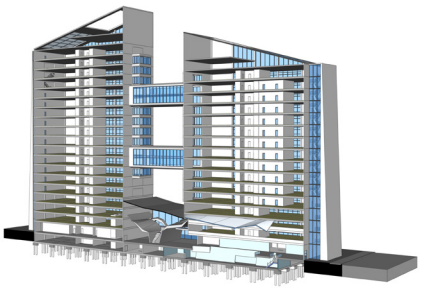
BricsCAD's 3D BIM workflow starts in real, solid 3D models to ensure buildability, and we don't require BIM technicians to make it work

b. Design capture via 3D massing & study models

In most 2D drafting based workflows a combination of maquettes, hand drawings and renderings are used as visuals when pitching a conceptual design to a client. Over the last decade, most firms use surface modeling tools (e.g. Trimble's SketchUp) to create and render study models. These 3D models allow designers to create realistic, high fidelity renderings to help secure client approval. Today, regardless of design workflow, most firms use 3D massing & study models to capture and portray their design ideas.

While almost every 3D BIM workflow includes the ability to create concept designs directly within the BIM editor, the use of more flexible tools (again, SketchUp) is often seen. Downstream BIM technicians take these study models and re-build them into a CAD-accurate BIM. This start/stop workflow incurs additional costs, and opens the door to errors in design translation.

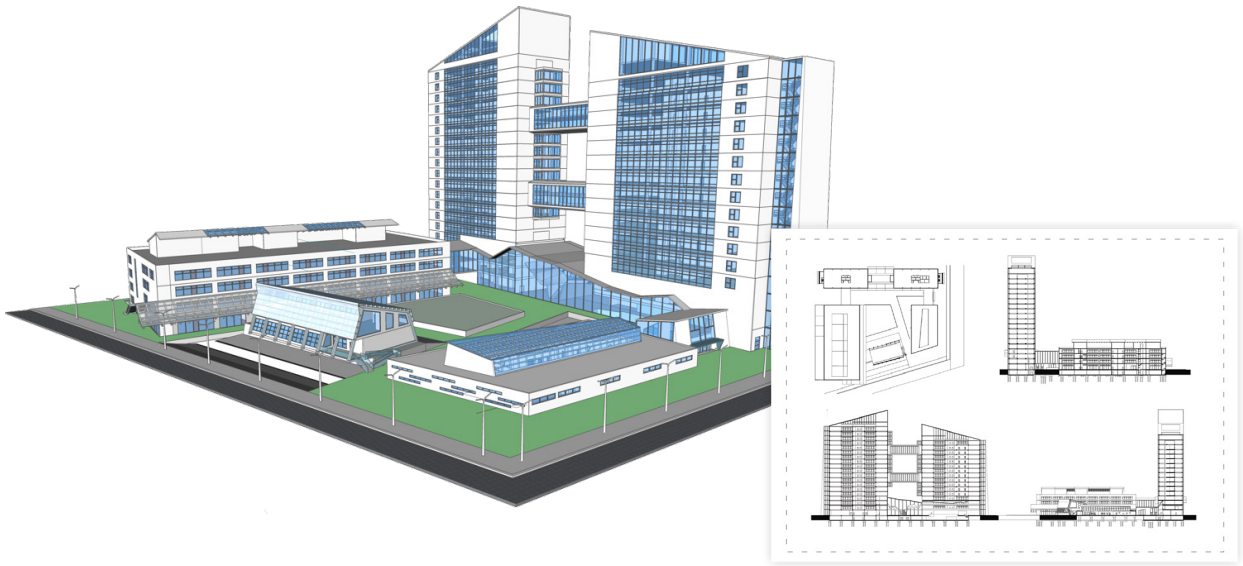
Perhaps most importantly, a key complaint regarding tools like SketchUp is that they do allow the design of non-buildable structures. These "*fantasy buildings*" consist of surface geometry that may be aesthetically pleasing, but which simply cannot be built. The reverse of this: if it can't be built, it cannot be properly represented as a viable 3D building information model. Hence, the general disdain for these "split" concept workflows.



c. Smooth movement from concept to detailed design

After client approval, users of 2D drafting workflows often “dissect” their 3D study models to assist in the creation of drawing views. Because of limitations of conceptual surface modelers, the transferred geometry is often limited to simple exterior elevations and plan views. The accuracy of the study model is often suspect, too. It’s generally simpler and safer to just start each drawing sheet from scratch.

In a BIM shop, when external modeling tools are used to create study models, the approved model is handed over to a BIM technician. The tech works to translate the study model into a valid BIM model. Unfortunately, this can be a “start from scratch” episode, too. The inaccuracies in the study model (*which was created only for visualization purposes, not CAD-accuracy*) severely limit its re-use. Carrying these “bad numbers” forward into a BIM is bad idea, because a BIM must always be CAD-accurate.



BricsCAD BIM is different. You never need to start over from scratch, and it’s always CAD-accurate.

d. Automated updates of construction drawings

Limited connections exist between project files in a 2D drafting workflow. Individual drawings are likely grouped into sheet sets, but dependencies between drawing files and their XREFs are managed manually. Because of this need for manual management, in essence, each individual DWG file is a stand-alone entity. Also, each sheet needs to be "set up" manually. The views are created, organized and annotated one at a time. When the design changes, the potential for error through missed sheet/view/annotation updates is very high.

In the 3D BIM paradigm, there is high integration between all of the files in the project.Generated BIM sections *(plan views, elevations, room sections, et al)* are the source for the views on the project's drawing sheets. Because of the "information centricity" of a BIM, changes made to the model ripple across all sheets automatically. The software will also highlight changed sheets for closer review, helping to ensure higher accuracy.

e. Minimized potential for human error

Sounds like a cool name for a rock band, right? The truth is that in 2D workflows, bad things can happen. This is mainly because of a lack of data continuity. And bad things do happen, often.
More drawings have to be checked more frequently, and errors can creep in. Misses can cost a lot more later, when construction documentation fails to reflect your design with the highest fidelity.

When you change your BIM, all associated drawings update automatically. An integrated BIM workflow means that fewer drawings need to be checked repeatedly. In a BIM shop, the focus is on design changes, *not the downstream effects of those design changes*. This frees you to do what you do best, and lets you use your computer to do what ***it*** does best - to help collect and manage your design decisions.

04

BricsCAD’s Powerful 3D BIM Workflow

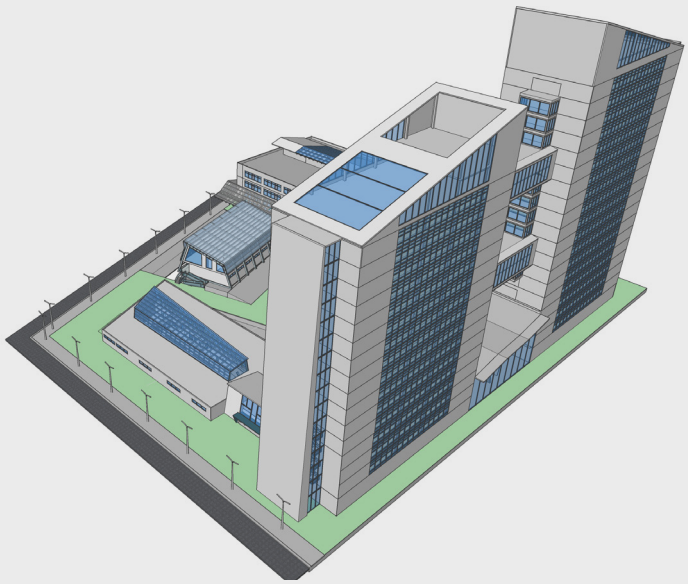
We're Bricsys, and we're different. We started building BIM tools nearly two decades ago. We've watched the industry evolve, and we've seen the frustration that many firms experience when trying to move to conventional BIM. We know that there is a better way to move to BIM.

It's an incremental change, inside a familiar environment, using tools that are familiar. It's about working smart - with a safety net. And it's about approaching the move to BIM at your speed, and on your schedule.

Unlike conventional BIM, with stop/start workflows - BricsCAD BIM enables full, CAD-accurate 3D modeling from the very start. We offer simple and accurate modeling tools that carry your 3D massing and study models directly into BIM. Better yet, it all happens - end-to-end - in industry-standard DWG 2018.

Next, BricsCAD BIM's workflow leverages AI features to classify your study model. These tools also assist you in adding design information. Then, the process of drawing sheet creation is accelerated with automatic BIM sections, and finishes up in the world's best 2D drafting system. The best part? All of this happens inside a the familiar user interface of BricsCAD Platinum.

Your first step to 3D BIM really can be a small step. When you use BricsCAD BIM, the best 2D drawing creation tools are always available, at your command. Create drawings any time, without re-learning anything. Now, the move to BIM is on your schedule. Let's get started!



Building Information Modeling with BricsCAD

BricsCAD® Shape

Start with real conceptual design freedom

BricsCAD® BIM

Transition smoothly to detailed design

Creating your design documentation

05

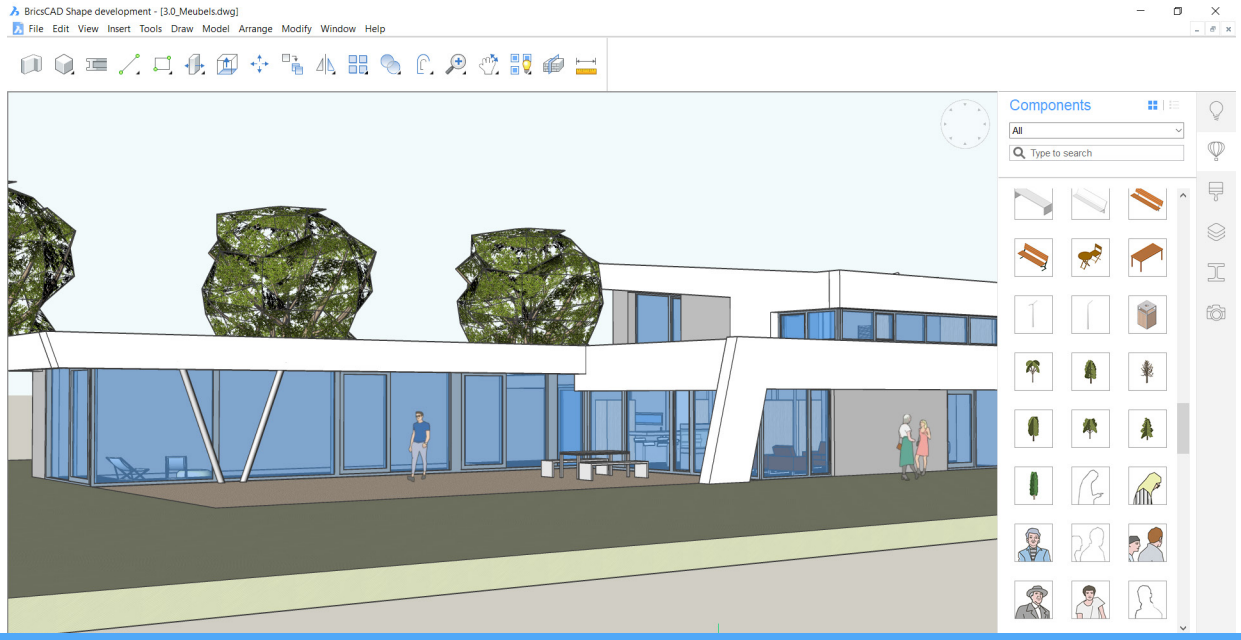
Start with real conceptual design freedom

BricsCAD® Shape

Our workflow starts here, in 100% free-form 3D with our simple, no-cost solid modeler - BricsCAD Shape. Shape is derived from full-on BricsCAD BIM. It was designed to maximize your freedom to shape your design, in a simple user interface, with full CAD accuracy. All inside industry-standard .dwg.

Start exploring your design ideas on building form, envelope, interior and environments. Enrich your design story by adding doors, windows, materials and other elements via drag and drop. Remove them, replace them, or move them around freely. It's a great way to explore design variations in a very dynamic way.

You can use Shape as a presentation tool, too. Render your designs interactively. So much of what you do represents your style and your intent. We made Shape to capture that intent early, with none of the limitations of other sketching tools. When you start with Shape, you can be assured that your work will carry forward - 100% - to the detail design phase. Try Shape today, always free of charge.



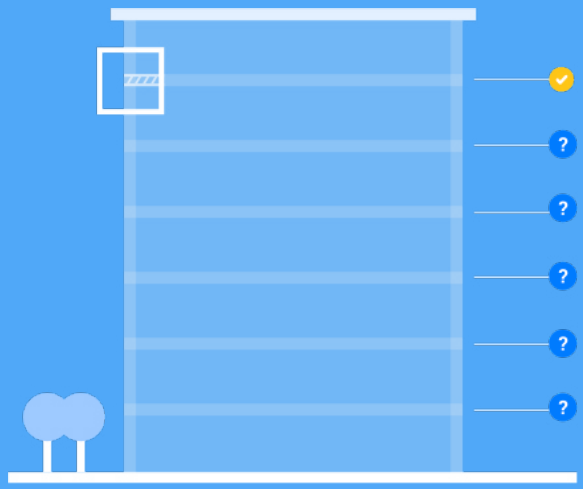
Collaborate on design refinements with your clients, in real-time, when you use BricsCAD Shape.

06

Transition smoothly to detailed design

When you start your design in BricsCAD Shape, you are modeling in a simplified version of BricsCAD BIM. Your design models, stored in .dwg, load directly into BricsCAD BIM and are ready to "BIMify". When you BIMify your Shape model, BricsCAD BIM will classify all building elements, with proper spatial locations, in seconds. Automatically. Only BricsCAD BIM offers 100% re-use of your 3D study model in the creation of a BIM.

BIMify is just the beginning of the use of AI in our 3D BIM workflow. **BIM Suggest** allows you to adjust the plies at a composition joint one time, and re-apply that adjustment everywhere in your model. Using machine intelligence, BricsCAD BIM finds each instance of the connection in your BIM and allows you to selectively propagate that juncture across your model.



Using BIM Suggest ensures that the details are correct, and incorporated across the entire BIM.

07

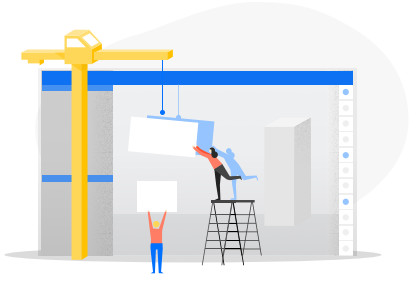
Creating your design documentation

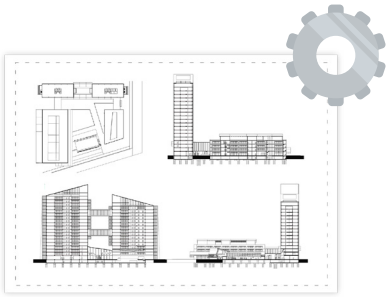
BricsCAD® BIM

As the main design deliverable to your client is a drawing set, dead-accurate design documentation is Job One. BricsCAD BIM delivers a highly integrated and automated documentation workflow. When you make changes to your BIM, those changes ripple through all associated drawing sheet sets.

There's no need to determine which drawing sheets need to be updated. You don't have to perform the updates, sheet by sheet. With BricsCAD BIM, you just change the 3D model. Also, all documentation synchronizes on command, or on demand. Finally, to ensure drawing sheet accuracy and consistency, sheets with changes will be highlighted for your detailed review.

This level of automation delivers a dramatic reduction in documentation errors. And as a pleasant by-product, the need for change orders can be greatly reduced. Here's a scenario: the client sits in on your design sessions, and interactively makes decisions with you. You both agree on the design, and your team works to develop the BIM and create documentation. Finally, the 2D construction docs you deliver are accurate, because they are in synch with one source of truth - the 3D BIM. In this type of design environment, all parties are free to experiment. This freedom is like a breath of fresh air. If you work together with your client, because your workflow allows it, just think: *there is no need to change what is right from the start.*





BricsCAD BIM takes design change freedom to the next level.

We invite you to try BricsCAD BIM

Imagine BIM-ready modeling from the concept stage, with no design effort lost, ever.

Next, we deliver multi-user access using proven workflows. You should know that BricsCAD BIM is certified to **BuildingSmart International's** IFC2x3 Coordination View 2.0, to ensure accurate model sharing between architecture, structural engineering and building mechanical disciplines. A unique feature of our approach is the ability to design and detail fabricated building components, all in one CAD product. And with BricsCAD BIM, you'll have access to the best 2D drafting tools available, with automated layouts and updates. A full set of **online video tutorials** to get you started, too. And yes, an honest price and licensing that works for your business.

To find out more, and for your 30-day free trial,
visit: https://www.bricsys.com/bim/

▶ **See our BricsCAD BIM End to End Workflow Overview video with Heidi Hewett**

Don Strimbu
VP of Communications at Bricsys
press@bricsys.com

buildingSMART International home of openBIM